DII.30B.DEC40.DTK.VDD-1

Defense Information Infrastructure (DII)

Common Operating Environment (COE)

Version 3.0/B

Version Description Document for the Developer's Toolkit (Digital UNIX 4.0)

February 19, 1997

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Table of Contents

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> **NOTE**: Courier font is used to indicate entries to be typed at the keyboard, UNIX commands, file and directory names, and screen text. For example:
>
> The file is located in the `DII_DEV` directory.

1. System Overview

Defense Information Infrastructure (DII) Common Operating Environment (COE) developer's tools aid the developer in the creation and ultimate installation of DII COE segments. The tools make software integration a largely automated process, thus significantly reducing development time while automatically allowing detection of potential integration and runtime problem areas.

This delivery consists of (1) 10 developer tools (CalcSpace, CanInstall, ConvertSeg, MakeAttribs, MakeInstall, TestInstall, TestRemove, TimeStamp, VerifySeg, and VerUpdate); (2) a setup script called `MakeTOOLSEnv`; (3) a data file called `TapeSizes` that contains a list of known tape devices; and (4) an Application Programmer Interface (API) `examples` directory and `includes` and `libs` directories. The developer's toolkit is delivered separate from the DII COE Kernel tape. By default, this product is located under the `DII_DEV` directory. The actual location of the developer's toolkit may vary from system to system because it is installed via a `tar` command. For example, if the toolkit is tarred to `/h`, the path would be `/h/DII_DEV`.

Developer's Tools

The 10 developer's tools can be run from the command line, and some can be run from other code using published APIs. The following developer's tools are included in the DII COE Version 3.0/B delivery:

C **CalcSpace** (Version 1.0.0.4)—the CalcSpace tool computes the space required for the segment specified and updates the hardware descriptor.

C **CanInstall** (Version 1.0.0.6)—the CanInstall tool tests a segment to see if it can be installed, which means that all required segments must already be on the disk and the disk cannot have any conflicting segments.

C **ConvertSeg** (Version 1.0.0.7)—the ConvertSeg tool examines segment descriptors and converts them to the latest format.

C **MakeAttribs** (Version 1.0.0.7)—the MakeAttribs tool creates the descriptor file FileAttribs, which recursively traverses every subdirectory beneath the segment home directory and creates a file with lines in the proper format.

C **MakeInstall** (Version 1.0.1.5)—the MakeInstall tool writes one or more segments to an installation medium or packages the segments for distribution over the network.

C   **TestInstall** (Version 1.0.0.7)—the TestInstall tool temporarily installs a segment that already resides on disk.

C   **TestRemove** (Version 1.0.0.6)—the TestRemove tool removes a segment that was installed by TestInstall.

C   **TimeStamp** (Version 1.0.0.6)—the TimeStamp tool puts the current time and date into the VERSION descriptor of the specified segment.

C   **VerifySeg** (Version 1.0.0.7)—the VerifySeg tool validates that a segment conforms to the rules for defining a segment.

C   **VerUpdate** (Version 1.0.1.5)—the VerUpdate tool increments the segment version number and updates the date and time in the VERSION descriptor of the specified segment.

The *DII COE Integration and Runtime Specification* provides a description of these tools and their functionality. The *DII COE Programming Guide* also provides examples of how to use some of these tools.

MakeTOOLSEnv Setup Script
The MakeTOOLSEnv setup script is located in the DII_DEV/Scripts directory. It defines the environment variables required for developer's tools processing. This script should be sourced before running the developer's tools.

TapeSizes Data File
The TapeSizes data file is located in the DII_DEV/data directory. It contains a list of known tape devices. This file is used as a convenience feature with the MakeInstall tool.

> **NOTE**: The environment variable TOOLS_DATA must be set and pointing to DII_DEV/data to allow MakeInstall to access this file.

examples Directory
The examples directory contains a list of example C programming files, which show developers how to use the public APIs. The required public include files are also shown. Examples are located in the DII_DEV/examples directory.

includes Directory
Public include files are used to compile with the public APIs. Public include files are located in the DII_DEV/includes directory.

libs Directory
Public API libraries are located in the DII_DEV/libs directory.

2.   Referenced Documents

The following documents are referenced in this Version Description Document:

C *Defense Information Infrastructure (DII) Common Operating Environment (COE) Integration and Runtime Specification* Version 2.0, DII COE I&RTS:Rev 2.0, Inter-National Research Institute, October 23, 1995

C *Defense Information Infrastructure (DII) Common Operating Environment (COE) Version 3.0/B Application Programmer Interface (API) Reference Guide (Digital UNIX and AIX)*, DII.30B.DECIBM.RG-1, Inter-National Research Institute, February 19, 1997

C *Defense Information Infrastructure (DII) Common Operating Environment (COE) Version 3.0/B Programming Guide (Digital UNIX and AIX)*, DII.30B.DECIBM.PG-1, Inter-National Research Institute, February 19, 1997.

3. Version Description

3.1 Inventory of Materials Released

C <u>Magnetic media</u>: Two 4mm tapes consisting of a relative tar of the Developer's Toolkit, Version 3.0/B (Digital UNIX 4.0).

C <u>Soft-copy Documentation</u>: One 3.5" floppy diskette (WordPerfect 6.0 for Windows format) containing the *Defense Information Infrastructure (DII) Common Operating Environment (COE) Version 3.0/B Version Description Document for the Developer's Toolkit (Digital UNIX 4.0)*, Document Control No. DII.30B.DEC40.DTK.VDD-1, February 19, 1997.

C <u>Hard-copy Documentation</u>: Two hard copies of the aforementioned Version Description Document.

3.2 Software Changes

This delivery contains no software changes.

4. Installation Instructions

Reference the *DII COE Programming Guide (Digital UNIX and AIX)* for instructions on installing the developer's tools.

5. Known Problems and Errors

This delivery contains no known problems and errors.

6. Release Notes

General

1. The user must log in as `root` to install the Developer's Toolkit tape. By doing this, the user will ensure that the tools have the correct permissions and ownerships to simplify use.

2. The tools do not support the `?` command line parameter for help. Help can be displayed for all tools by using the `-h` or `-H` command line parameters.

3. If the add, append, or delete keywords are used in the community `SegDescrip` entry, the brackets "{}" that mark the beginning and end of the text must be the first characters on a new line.

4. The `MakeTOOLSEnv` script must be run in the `DII_DEV/Scripts` directory to set the `TOOLS_HOME`, `MACHINE`, `MACHINE_OS`, and `CPU` environment variables. This script should be run before running any of the developer's tools. If this script is not run, errors may occur.

MakeInstall Tool

1. MakeInstall supports multi-volume tapes but will not divide segments across tapes.

2. MakeInstall does not support variants.

3. MakeInstall does not allow segments and their descriptors to be checked out from the repository.

4. MakeInstall does not support the `-ot {files}` command line option.

5. The `TOOLS_DATA` environment variable must be set to the developer's tools `data` directory in order to display the device table.

6. In order to not compress a segment, the `$NOCOMPRESS` option must be specified in the direct `SegDescrip` entry in the `SegInfo` file. MakeInstall no longer prompts the user with a compress option; instead, the tool automatically references the `SegDescrip` entry.

TestInstall Tool

1. The `AcctGrp` descriptor only supports one entry. If multiple entries exist, only the first account group is created.

2. The `Hardware` descriptor does not support "`PC`" or "`Pentium`" in the `$CPU` field and does not support "`NT`" or "`SCO`" in the `$OPSYS` field. These keywords are supported but are invalid on UNIX platforms.

3. Network Information Service (NIS) and Domain Name Service (DNS) servers are not updated when processing the `Network` descriptor.

4. The `$NETMASK` keyword in the `Network` descriptor is not processed.

5. The `$HOME_DIR` keyword in the `Requires` descriptor is not processed.

TestRemove Tool

1. TestRemove does not remove services, groups, or password file entries and does not perform an unmount.

TimeStamp Tool

1. If a valid version line in the version file cannot be identified and no command line parameters are given, the TimeStamp tool will return an error.

VerifySeg Tool

1. VerifySeg does not check the syntax of version numbers listed in the `Compat` Segment Descriptor file.

2. VerifySeg performs keyword parsing (searches for keywords and their associated fields) but does not perform validity (bounds or data field) checking in the `Conflicts` or `VERSION` descriptor file.

3. VerifySeg does not perform checking in the `FilesList` Segment Descriptor file.

4. VerifySeg performs validity checking (bounds or data field) on keywords but not on data associated with keywords (e.g., disk size in the `Hardware` Segment Descriptor file).

5. VerifySeg does not check keyword combination or keyword and segment type constraints in the `Hardware` Segment Descriptor file.

6. VerifySeg should not be run on a NFS-mounted file system as `root`. The ownership of the `Validated` file becomes unknown and it can adversely affect the DEC `tar` command.

VerUpdate Tool

1. If a valid version line in the version file cannot be identified and no command line parameters are given, the VerUpdate tool will return an error.

Public APIs

Reference the *DII COE API Reference Guide (Digital UNIX and AIX)* and the *DII COE Programming Guide (Digital UNIX and AIX)* for information on public APIs.